



PO Box 1370
Artesia, NM 88211-1370
(575) 748-1288

NM OIL CONSERVATION
ARTESIA DISTRICT
FEB 08 2016

RECEIVED

30-015-43289

November 30, 2015

COG, LLC
One Concho Center
600 W. Illinois Ave.
Midland, TX 79701

RE: Sherman 4 Fee 15H
150' FNL & 990' FWL
Sec. 4, T19S, R26E
Eddy County, New Mexico

Dear Sir,

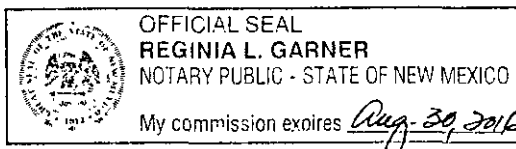
The attached is the Deviation Survey for the above captioned well.

Very truly yours,

Chris Graham
Drilling Superintendent

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 30th day of November, 2015.

Notary Public

Sherman 4 Fee 15H

Date	Depth	Deviation	Direction
11/17/2015	87	0.30	122.00
11/17/2015	150	0.70	341.30
11/17/2015	240	2.10	338.00
11/17/2015	330	3.40	337.00
11/17/2015	509	3.60	345.20
11/17/2015	597	3.80	344.50
11/17/2015	685	4.60	344.80
11/17/2015	797	4.40	345.50
11/17/2015	905	3.60	0.10
11/18/2015	999	3.80	3.70
11/18/2015	1094	3.50	0.50
11/18/2015	1158	3.60	359.50
11/19/2015	1253	3.60	1.30
11/19/2015	1316	3.70	1.40
11/19/2015	1410	3.60	2.20
11/19/2015	1505	3.80	346.40
11/19/2015	1599	3.80	348.70
11/19/2015	1693	4.00	350.10
11/19/2015	1788	2.90	351.40
11/19/2015	1882	2.90	352.70
11/19/2015	1977	3.00	350.90
11/20/2015	2071	3.10	353.50
11/20/2015	2166	3.00	353.20
11/20/2015	2260	1.90	336.30
11/20/2015	2312	1.80	183.20
11/20/2015	2355	0.20	173.60
11/20/2015	2449	0.40	175.52
11/20/2015	2481	0.50	178.40
11/20/2015	2544	3.50	185.00
11/20/2015	2575	6.00	177.10
11/20/2015	2607	9.10	173.20
11/20/2015	2638	12.10	172.20
11/20/2015	2670	14.50	172.70
11/20/2015	2701	17.60	173.90
11/20/2015	2733	21.00	176.00
11/20/2015	2764	23.90	177.70
11/20/2015	2796	26.80	178.80
11/20/2015	2827	29.50	181.40
11/20/2015	2858	32.70	182.00
11/20/2015	2890	36.80	181.20
11/20/2015	2953	42.20	180.10
11/20/2015	3016	48.70	180.50

Date	Depth	Deviation	Direction
11/20/2015	3047	51.80	181.30
11/20/2015	3079	54.90	181.70
11/20/2015	3110	58.30	181.60
11/20/2015	3141	61.40	181.00
11/21/2015	3173	64.40	180.50
11/21/2015	3204	67.20	180.60
11/21/2015	3267	74.10	180.30
11/21/2015	3299	77.40	180.00
11/21/2015	3330	81.00	179.60
11/21/2015	3362	84.70	179.31
11/21/2015	3425	86.90	179.10
11/21/2015	3551	89.30	179.70
11/21/2015	3611	89.70	179.90
11/21/2015	3705	89.70	179.80
11/21/2015	3736	70.70	180.60
11/21/2015	3800	89.80	179.80
11/21/2015	3895	89.60	179.80
11/21/2015	3989	90.10	180.00
11/21/2015	4084	89.80	180.00
11/21/2015	4178	90.80	180.20
11/22/2015	4245	89.70	179.30
11/22/2015	4273	90.60	180.30
11/22/2015	4367	90.70	180.40
11/22/2015	4462	90.80	180.30
11/22/2015	4556	90.70	180.50
11/22/2015	4651	90.80	179.80
11/22/2015	4840	89.80	179.30
11/22/2015	4934	89.70	179.10
11/22/2015	5029	89.80	179.10
11/22/2015	5123	89.80	179.00
11/22/2015	5218	90.00	178.60
11/22/2015	5407	89.80	179.50
11/22/2015	5501	89.70	179.70
11/22/2015	5596	90.40	180.00
11/23/2015	5690	90.50	199.70
11/23/2015	5785	90.50	179.80
11/23/2015	5879	90.50	179.70
11/23/2015	5924	90.70	179.90
11/23/2015	6068	90.70	179.90
11/23/2015	6163	90.90	180.00
11/23/2015	6351	90.10	180.60
11/23/2015	6446	90.30	180.50
11/23/2015	6540	90.40	180.50
11/23/2015	6635	90.50	180.50
11/23/2015	6729	89.30	180.40

Date	Depth	Deviation	Direction
11/23/2015	6757	90.90	180.30
11/23/2015	6824	89.50	180.00
11/23/2015	6918	89.50	180.20
11/23/2015	7012	89.50	179.10
11/23/2015	7107	89.60	179.20
11/23/2015	7202	89.70	179.20
11/24/2015	7296	87.90	179.00
11/24/2015	7391	89.90	179.20
11/24/2015	7484	90.20	179.10
11/24/2015	7580	90.40	179.10
11/24/2015	7643	90.50	179.20



1/20/16

State of New Mexico
County of Eddy

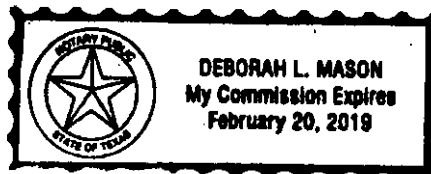
I, Donald D. Mason, certify that: I am employed by Terra Directional Services LLC; that I did on the day(s) of 11/17/2015 through 11/24/2015 conduct or supervise the taking of a MWD survey from a depth of 87 feet to a depth of 7698 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Terra Directional Services LLC; that I am authorized and qualified to make this report; that this survey was conducted at the request of COG Operating LLC for the Sherman 4 Fee #15H Well API 30-015-43289 in Eddy County, New Mexico; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by Terra Directional Services LLC.

A handwritten signature of Donald D. Mason in black ink, written over a horizontal line.

Donald D. Mason
President

State of Texas
County of Burnet

Before me, a notary public, on this day personally appeared Donald D. Mason, known to me to be the person whose name is subscribed to the foregoing document and, being by me first duly sworn, declared that the statements therein contained are true and correct.



A handwritten signature of Deborah L. Mason in black ink, written over a horizontal line.

Notary Public's Signature



COG Operating LLC

Eddy County, NM (NAD-27 2015)

Sherman 4 Fee #15H

SHL: 150' FNL, 990' FWL, Sec 4, T19S, R26E, Lot 4

PP: 330' FNL, 969.8' FWL, Sec 4, T19S, R26E, Lot 4

30-015-43289

BHL: 350' FSL, 1004' FWL, Sec 4, T19S, R26E, Unit M

Design: BHL: 350' FSL, 1004' FWL, Sec 4, T19S, R26E, Unit M

Standard Survey Report

25 November, 2015



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well SHL: 150' FNL, 990' FWL, Sec 4, T19S, R26E, Lot 4
Project:	Eddy County, NM (NAD-27 2015)	TVD Reference:	KB @ 3397.00usft (Silver Oak 3)
Site:	Sherman 4 Fee #15H	MD Reference:	KB @ 3397.00usft (Silver Oak 3)
Well:	SHL: 150' FNL, 990' FWL, Sec 4, T19S, R26E, Lot 4	North Reference:	Grid
Wellbore:	BHL: 350' FSL, 1004' FWL, Sec 4, T19S, R26E, Unit M	Survey Calculation Method:	Minimum Curvature
Design:	BHL: 350' FSL, 1004' FWL, Sec 4, T19S, R26E, Unit M	Database:	EDM 5000.1 Single User Db

Project	Eddy County, NM (NAD-27 2015)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Sherman 4 Fee #15H		
Site Position:		Northing:	617,089.10 usft
From:	Map	Easting:	481,964.10 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in
		Latitude:	32° 41' 47.265 N
		Longitude:	104° 23' 31.064 W
		Grid Convergence:	-0.03 °

Well	SHL: 150' FNL, 990' FWL, Sec 4, T19S, R26E, Lot 4		
Well Position	+N/-S	0.00 usft	Northing: 617,089.10 usft
	+E/-W	0.00 usft	Easting: 481,964.10 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Ground Level:	3,379.00 usft
		Latitude:	32° 41' 47.265 N
		Longitude:	104° 23' 31.064 W

Wellbore	BHL: 350' FSL, 1004' FWL, Sec 4, T19S, R26E, Unit M		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2015	11/10/2015	7.54
			Dip Angle
			(°)
			60.38
			Field Strength
			(nT)
			48,294

Design	BHL: 350' FSL, 1004' FWL, Sec 4, T19S, R26E, Unit M		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			180.04

Survey Program	Date 11/25/2015		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
87.00	7,698.00	TDS MWD #1 (BHL: 350' FSL, 1004' FWL)	MWD
			Description
			MWD - Standard

Survey									
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
87.00	0.30	12.20	87.00	0.22	0.05	-0.22	0.34	0.34	0.00
150.00	0.70	341.30	150.00	0.75	-0.04	-0.75	0.74	0.63	-49.05
240.00	2.10	338.00	239.97	2.80	-0.83	-2.80	1.56	1.56	-3.67
330.00	3.40	337.00	329.86	6.78	-2.49	-6.78	1.45	1.44	-1.11
420.00	3.30	336.40	419.71	11.61	-4.57	-11.61	0.12	-0.11	-0.67
509.00	3.60	345.20	508.55	16.66	-6.31	-16.66	0.68	0.34	9.89
597.00	3.80	344.50	596.36	22.14	-7.80	-22.14	0.23	0.23	-0.80



TDS
Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well SHL: 150' FNL, 990' FWL, Sec 4, T19S, R26E, Lot 4
Project:	Eddy County, NM (NAD-27 2015)	TVD Reference:	KB @ 3397.00usft (Silver Oak 3)
Site:	Sherman 4 Fee #15H	MD Reference:	KB @ 3397.00usft (Silver Oak 3)
Well:	SHL: 150' FNL, 990' FWL, Sec 4, T19S, R26E, Lot 4	North Reference:	Grid
Wellbore:	BHL: 350' FSL, 1004' FWL, Sec 4, T19S, R26E, Unit M	Survey Calculation Method:	Minimum Curvature
Design:	BHL: 350' FSL, 1004' FWL, Sec 4, T19S, R26E, Unit M	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
685.00	4.60	344.80	684.13	28.36	-9.50	-28.35	0.91	0.91	0.34
747.00	4.40	345.50	745.94	33.06	-10.75	-33.05	0.33	-0.32	1.13
810.00	3.70	345.80	808.78	37.37	-11.85	-37.38	1.11	-1.11	0.48
905.00	3.60	0.10	903.59	43.33	-12.60	-43.32	0.96	-0.11	15.05
999.00	3.80	3.70	997.39	49.39	-12.40	-49.38	0.33	0.21	3.83
1,094.00	3.50	0.50	1,092.20	55.43	-12.17	-55.42	0.38	-0.32	-3.37
1,158.00	3.60	359.50	1,156.08	59.39	-12.17	-59.38	0.18	0.16	-1.56
1,253.00	3.60	1.30	1,250.89	65.35	-12.13	-65.35	0.12	0.00	1.89
1,316.00	3.70	1.40	1,313.76	69.36	-12.03	-69.35	0.16	0.16	0.16
1,410.00	3.60	2.20	1,407.57	75.34	-11.84	-75.34	0.12	-0.11	0.85
1,505.00	3.80	346.40	1,502.38	81.38	-12.47	-81.38	1.09	0.21	-16.63
1,599.00	3.80	348.70	1,596.17	87.47	-13.81	-87.46	0.16	0.00	2.45
1,693.00	4.00	350.10	1,689.95	93.75	-14.99	-93.74	0.24	0.21	1.49
1,788.00	2.90	351.40	1,784.78	99.39	-15.92	-99.38	1.16	-1.16	1.37
1,882.00	2.90	352.70	1,878.66	104.10	-16.57	-104.09	0.07	0.00	1.38
1,977.00	3.00	350.90	1,973.53	108.94	-17.27	-108.93	0.14	0.11	-1.89
2,071.00	3.10	353.50	2,067.40	113.89	-17.95	-113.88	0.18	0.11	2.77
2,166.00	3.00	355.00	2,162.26	118.92	-18.46	-118.91	0.13	-0.11	1.58
2,260.00	1.90	336.30	2,256.18	122.80	-19.30	-122.79	1.43	-1.17	-19.89
2,355.00	0.20	172.60	2,351.16	124.08	-19.91	-124.06	2.20	-1.79	-172.32
2,449.00	0.40	175.50	2,445.16	123.59	-19.86	-123.57	0.21	0.21	3.09
2,481.00	0.50	178.40	2,477.16	123.34	-19.85	-123.32	0.32	0.31	9.06
2,512.00	1.80	183.20	2,508.15	122.72	-19.87	-122.70	4.20	4.19	15.48
2,544.00	3.50	183.00	2,540.12	121.24	-19.95	-121.22	5.31	5.31	-0.63
2,575.00	6.00	177.10	2,571.01	118.67	-19.92	-118.66	8.21	8.06	-19.03
2,607.00	9.10	173.20	2,602.73	114.49	-19.53	-114.48	9.81	9.69	-12.19
2,638.00	12.10	172.20	2,633.19	108.84	-18.80	-108.82	9.70	9.68	-3.23
2,670.00	14.50	172.70	2,664.33	101.54	-17.84	-101.53	7.51	7.50	1.56
2,701.00	17.60	173.90	2,694.12	93.03	-16.85	-93.01	10.06	10.00	3.87
2,733.00	21.00	176.00	2,724.32	82.49	-15.93	-82.48	10.84	10.63	6.56
2,764.00	23.90	177.70	2,752.97	70.67	-15.29	-70.66	9.59	9.35	5.48
2,796.00	26.80	178.80	2,781.88	56.98	-14.88	-56.97	9.18	9.06	3.44
2,827.00	29.50	181.40	2,809.21	42.36	-14.92	-42.35	9.56	8.71	8.39
2,858.00	32.70	182.00	2,835.76	26.36	-15.40	-26.35	10.37	10.32	1.94
2,890.00	36.00	181.20	2,862.17	8.31	-15.90	-8.30	10.41	10.31	-2.50
2,921.00	39.20	180.90	2,886.73	-10.60	-16.24	10.61	10.34	10.32	-0.97
2,953.00	42.20	180.10	2,910.99	-31.46	-16.42	31.47	9.52	9.38	-2.50
2,984.00	45.60	179.80	2,933.32	-52.95	-16.40	52.96	10.99	10.97	-0.97
3,016.00	48.70	180.50	2,955.08	-76.41	-16.47	76.42	9.82	9.69	2.19
3,047.00	51.80	181.30	2,974.90	-100.24	-16.84	100.25	10.19	10.00	2.58
3,079.00	54.90	181.70	2,994.00	-125.90	-17.52	125.91	9.74	9.69	1.25



TDS
Survey Report



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Design:	BHL: 350' FSL, 1004' FWL, Sec 4, T19S, R26E, Unit M	Database:	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,110.00	58.30	181.60	3,011.06	-151.76	-18.26	151.78	10.97	10.97	-0.32
3,141.00	61.40	181.00	3,026.63	-178.56	-18.87	178.57	10.14	10.00	-1.94
3,173.00	64.40	180.50	3,041.21	-207.04	-19.24	207.05	9.48	9.38	-1.56
3,204.00	67.20	180.60	3,053.91	-235.31	-19.51	235.33	9.04	9.03	0.32
3,236.00	70.70	180.60	3,065.41	-265.17	-19.82	265.19	10.94	10.94	0.00
3,267.00	74.10	180.30	3,074.78	-294.72	-20.06	294.73	11.01	10.97	-0.97
3,299.00	77.40	180.00	3,082.65	-325.73	-20.14	325.74	10.35	10.31	-0.94
3,330.00	81.00	179.60	3,088.46	-356.17	-20.03	356.19	11.68	11.61	-1.29
3,362.00	84.70	179.30	3,092.44	-387.92	-19.72	387.93	11.60	11.56	-0.94
3,393.00	86.90	179.20	3,094.71	-418.83	-19.32	418.84	7.10	7.10	-0.32
3,425.00	86.90	179.10	3,096.44	-450.78	-18.85	450.79	0.31	0.00	-0.31
3,488.00	87.60	179.60	3,099.47	-513.70	-18.13	513.71	1.36	1.11	0.79
3,551.00	89.30	179.70	3,101.17	-576.67	-17.75	576.69	2.70	2.70	0.16
3,611.00	89.70	179.90	3,101.70	-636.67	-17.54	636.68	0.75	0.67	0.33
3,705.00	89.70	179.80	3,102.19	-730.67	-17.29	730.68	0.11	0.00	-0.11
3,800.00	89.80	179.80	3,102.60	-825.67	-16.96	825.68	0.11	0.11	0.00
3,895.00	89.60	179.80	3,103.10	-920.67	-16.63	920.68	0.21	-0.21	0.00
3,989.00	90.10	180.00	3,103.35	-1,014.67	-16.46	1,014.68	0.57	0.53	0.21
4,084.00	89.80	180.00	3,103.43	-1,109.67	-16.46	1,109.68	0.32	-0.32	0.00
4,178.00	90.80	180.20	3,102.94	-1,203.66	-16.63	1,203.67	1.08	1.06	0.21
4,273.00	90.60	180.30	3,101.78	-1,298.65	-17.04	1,298.67	0.24	-0.21	0.11
4,367.00	90.70	180.40	3,100.71	-1,392.65	-17.62	1,392.66	0.15	0.11	0.11
4,462.00	90.80	180.30	3,099.47	-1,487.64	-18.20	1,487.65	0.15	0.11	-0.11
4,556.00	90.70	180.50	3,098.24	-1,581.63	-18.85	1,581.64	0.24	-0.11	0.21
4,651.00	90.80	179.80	3,096.99	-1,676.62	-19.10	1,676.63	0.74	0.11	-0.74
4,745.00	89.70	179.30	3,096.58	-1,770.61	-18.36	1,770.62	1.29	-1.17	-0.53
4,840.00	89.80	179.30	3,097.00	-1,865.60	-17.20	1,865.62	0.11	0.11	0.00
4,934.00	89.70	179.10	3,097.41	-1,959.59	-15.89	1,959.60	0.24	-0.11	-0.21
5,029.00	89.80	179.10	3,097.82	-2,054.58	-14.40	2,054.59	0.11	0.11	0.00
5,123.00	89.80	179.00	3,098.15	-2,148.57	-12.84	2,148.58	0.11	0.00	-0.11
5,218.00	90.00	178.60	3,098.31	-2,243.55	-10.85	2,243.55	0.47	0.21	-0.42
5,312.00	90.10	179.60	3,098.23	-2,337.53	-9.37	2,337.54	1.07	0.11	1.06
5,407.00	89.80	179.50	3,098.32	-2,432.53	-8.63	2,432.54	0.33	-0.32	-0.11
5,501.00	89.70	179.70	3,098.73	-2,526.53	-7.97	2,526.53	0.24	-0.11	0.21
5,596.00	90.40	180.00	3,098.64	-2,621.53	-7.72	2,621.53	0.80	0.74	0.32
5,690.00	90.50	179.70	3,097.90	-2,715.52	-7.48	2,715.53	0.34	0.11	-0.32
5,785.00	90.50	179.80	3,097.08	-2,810.52	-7.06	2,810.52	0.11	0.00	0.11
5,879.00	90.50	179.70	3,096.26	-2,904.51	-6.65	2,904.52	0.11	0.00	-0.11
5,974.00	90.70	179.90	3,095.26	-2,999.51	-6.32	2,999.51	0.30	0.21	0.21
6,068.00	90.70	179.90	3,094.11	-3,093.50	-6.16	3,093.50	0.00	0.00	0.00
6,163.00	90.90	180.00	3,092.79	-3,188.49	-6.07	3,188.49	0.24	0.21	0.11



TDS
Survey Report



Company: COG Operating LLC Local Co-ordinate Reference: Well SHL: 150' FNL, 990' FWL, Sec 4, T19S, R26E, Lot 4
Project: Eddy County, NM (NAD-27 2015) TVD Reference: KB @ 3397.00usft (Silver Oak 3)
Site: Sherman 4 Fee #15H MD Reference: KB @ 3397.00usft (Silver Oak 3)
Well: SHL: 150' FNL, 990' FWL, Sec 4, T19S, R26E, North Reference: Grid
Lot 4
Wellbore: BHL: 350' FSL, 1004' FWL, Sec 4, T19S, R26E, Survey Calculation Method: Minimum Curvature
Unit M
Design: BHL: 350' FSL, 1004' FWL, Sec 4, T19S, R26E, Database: EDM 5000.1 Single User Db
Unit M

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,257.00	90.90	180.30	3,091.31	-3,282.48	-6.32	3,282.48	0.32	0.00	0.32
6,351.00	90.10	180.60	3,090.49	-3,376.47	-7.06	3,376.48	0.91	-0.85	0.32
6,446.00	90.30	180.50	3,090.16	-3,471.47	-7.97	3,471.47	0.24	0.21	-0.11
6,540.00	90.40	180.50	3,089.58	-3,565.46	-8.79	3,565.47	0.11	0.11	0.00
6,635.00	90.50	180.50	3,088.84	-3,660.45	-9.62	3,660.46	0.11	0.11	0.00
6,729.00	89.30	180.40	3,089.00	-3,754.45	-10.36	3,754.46	1.28	-1.28	-0.11
6,824.00	89.50	180.00	3,090.00	-3,849.44	-10.69	3,849.45	0.47	0.21	-0.42
6,918.00	89.50	180.20	3,090.82	-3,943.44	-10.85	3,943.45	0.21	0.00	0.21
7,012.00	89.50	179.10	3,091.64	-4,037.43	-10.28	4,037.44	1.17	0.00	-1.17
7,107.00	89.60	179.20	3,092.38	-4,132.42	-8.87	4,132.43	0.15	0.11	0.11
7,202.00	89.70	179.20	3,092.96	-4,227.41	-7.54	4,227.41	0.11	0.11	0.00
7,296.00	89.90	179.00	3,093.29	-4,321.40	-6.07	4,321.40	0.30	0.21	-0.21
7,391.00	89.90	179.20	3,093.46	-4,416.39	-4.58	4,416.39	0.21	0.00	0.21
7,485.00	90.20	179.10	3,093.37	-4,510.37	-3.18	4,510.38	0.34	0.32	-0.11
7,580.00	90.40	179.10	3,092.88	-4,605.36	-1.69	4,605.36	0.21	0.21	0.00
7,643.00	90.50	179.20	3,092.38	-4,668.35	-0.75	4,668.35	0.22	0.16	0.16
Final MWD Survey									
7,698.00	90.50	179.20	3,091.90	-4,723.35	0.01	4,723.34	0.00	0.00	0.00
Projection to Bit/TD									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
7,643.00	3,092.38	-4,668.35	-0.75	Final MWD Survey
7,698.00	3,091.90	-4,723.35	0.01	Projection to Bit/TD

Checked By:

Deborah L. Mason

Approved By:

David L. Mason

Date:

1/20/16

